Amendments to the Abstract:

Please replace the previous Abstract with the following redlined Abstract:

A linear scalable method computes a Fast Fourier Transform (FFT) or Inverse Fast Fourier transform (IFFT) in a multiprocessing system using a decimation in time approach. Linear scalability ~~means,~~ provides that, as the number of processor increases by a factor P (for example), the computational cycle reduces by exactly the same factor P. The method includes computing the first two stages of an N-point FFT/IFFT as a single radix-4 butterfly computation operation while implementing the remaining ($\log_2$N-2) stages as radix-2 operations. Each radix-2 operation employs a single radix-2 butterfly computation loop without employing nested loops. The method also includes distributing the computation of the butterflies in each ~~sage~~ stage such that each processor computes an equal number of complete butterfly calculations thereby eliminating data interdependency in the stage.